

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization

International Bureau



(43) International Publication Date 29 July 2004 (29.07.2004)

PCT

(10) International Publication Number WO 2004/062348 A3

(51) International Patent Classification7: A01F 29/00

(21) International Application Number:

PCT/CA2004/000035

(22) International Filing Date: 14 January 2004 (14.01.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

2,416,238

14 January 2003 (14.01.2003) CA

(71) Applicant and

(72) Inventor: ROUSSEAU, Victor [CA/CA]; 591, Route 259 Sud, JOG 1N0 Sainte-Monique, Québec, CA (CA).

(74) Agent: OGILVY RENAULT; 1981 McGill College Avenue, Suite 1600, Montreal, 10 H3A 2Y3 (CA).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

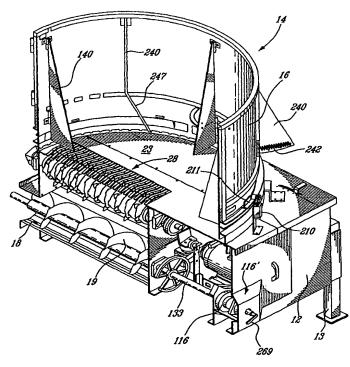
Published:

with international search report

(88) Date of publication of the international search report: 7 October 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: HAY BALE PROCESSOR



(57) Abstract: A hay bale processor (10) having a cylindrical rotatable drum (14) adapted to displace a bale of hay (156-157) over a grill (26) which has a plurality of spaced-apart parallel slot openings (27) which are adjustable to define an average fiber cut length. A rotor (28) driven by an electric motor (66-67) has cutting blades (35) projecting through the openings to contact a bottom face (159) of a bale of hay (160) displaced over the grill. The rotor has a driveable shaft (29) secured to a displaceable suspension mechanism (45) to displace the blades (35) in the openings and above the grill a variable distance depending on the resistive load appliA hay bale processor (10) having a cylindrical rotatable drum (14) adapted to displace a bale of hay (156-157) over a grill (26) which has a plurality of spaced-apart parallel slot openings (27) which are adjustable to define an average fiber cut length. A rotor (28) driven by an electric motor (66-67) has cutting blades (35) projecting through the openings to contact a bottom face (159) of a bale of hay (160) displaced over the grill. The rotor has a driveable shaft (29) secured to a displaceable suspension mechanism (45) to displace the blades (35) in the openings and above the grill a variable distance depending on the resistive load applied to the blades of the rotor when a bale of hay is displaced over the grill. The displaceable suspension mechanism (45) is biased upwardly by an air

cylinder (50) or air cushion device (280) to maintain a substantially constant pressure on the displaceable suspension such that when the load on the cutting knives of the rotor are subjected to a force exceeding the predetermined pressure of the cylinder the rotor is displaced whereby a substantially constant drive torque is maintained on the electric motor driving the shaft (29) of the rotor (28).

INTERNATIONAL SEARCH REPORT

Introponal Application No PC7/CA2004/000035

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 A01F29/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

 $\label{lem:minimum} \begin{array}{ll} \mbox{Minimum documentation searched (classification system followed by classification symbols)} \\ \mbox{IPC 7} & \mbox{A01F} & \mbox{A01D} & \mbox{A01K} & \mbox{B02C} \end{array}$

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUME	INTS CONSIDERED TO BE RELEVANT	
Category °	Citation of document, with Indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 134 554 A (MORLOCK RUBEN D) 16 January 1979 (1979-01-16) column 3, line 34 -column 4, line 40 figures 1-4	1,2,18, 25
A	US 4 846 411 A (HERRON MAYNARD M ET AL) 11 July 1989 (1989-07-11) column 5, line 15 - line 48 figures 1-3	1,2,20, 34
A	EP 0 407 112 A (KIDD FARM MACHINERY) 9 January 1991 (1991-01-09) column 5, line 41 -column 7, line 26 figures 1,2,4	1,2,27, 34
	-/	
X Furt	her documents are listed in the continuation of box C. X Patent family member	s are listed in annex.

	<u></u>		
Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance.	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention		
"E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family		
Date of the actual completion of the international search	Date of mailing of the international search report		
27 May 2004	2 0. 07. 04		
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijewijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,	Authorized officer		
Fax: (+31-70) 340-3016	Baltanás y Jorge, R		

INTERNATIONAL SEARCH REPORT

Interior nat Application No
PCT/CA2004/000035

		PCT/CA2004/000035
	ntion) DOCUMENTS CONSIDERED TO BE RELEVANT	
ategory °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3 966 128 A (ANDERSON JOSEPH A ET AL) 29 June 1976 (1976-06-29) column 2, line 15 -column 5, line 20 figures 1-3	1,10-12, 18,25, 34,35
A	US 5 653 394 A (TOPPING GILBERT ET AL) 5 August 1997 (1997-08-05) column 3, line 42 -column 4, line 31 figures 5,6	1,34
		·

INTERNATIONAL SEARCH REPORT

information on pateril ramily members

Interior nat Application No
PCT/CA2004/000035

	Publication date	Patent family member(s)		Publication date
A	16-01-1979	NONE		
A	11-07-1989	CA	1297388 C	17-03-1992
A	09-01-1991	CA EP US	2020146 A1 0407112 A1 5277372 A	02-01-1991 09-01-1991 11-01-1994
A	29-06-1976	NONE		
Α	05-08-1997	CA	2160646 A1	17-04-1997
	A	A 16-01-1979 A 11-07-1989 A 09-01-1991 A 29-06-1976	A 16-01-1979 NONE A 11-07-1989 CA A 09-01-1991 CA EP US A 29-06-1976 NONE	A 16-01-1979 NONE A 11-07-1989 CA 1297388 C A 09-01-1991 CA 2020146 A1 EP 0407112 A1 US 5277372 A A 29-06-1976 NONE